

**STATEMENT
OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
ON THE AIR RESOURCES BOARD'S
PROPOSED HEAVY-DUTY RESIDENTIAL AND COMMERCIAL
SOLID WASTE COLLECTION VEHICLE RULE**

September 25, 2003

The Manufacturers of Emission Controls Association (MECA) is pleased to provide testimony in support of the Air Resources Board's proposal to require reductions in particulate matter (PM) from existing on-road heavy-duty diesel residential and commercial solid waste collection vehicles. We believe the proposal presents a balanced, fair, and flexible approach that will achieve significant PM emission reductions in a cost-effective manner. Further, we firmly believe that the emission control technologies that will be needed to help meet the requirements of the proposed program will be available. Indeed, the PM control technologies cited in the ARB staff report are being used today in California and elsewhere.

We commend the ARB for its leadership in developing this innovative and important regulatory initiative. ARB's proposed program will provide important and very rapid PM emission reductions benefits and will provide an opportunity to demonstrate the effectiveness of a retrofit/rebuild/replacement strategy. This program can serve as a model for future efforts to reduce PM emissions from existing diesel engines not only in California, but also in other states and in other countries around the world.

MECA is a non-profit association of the world's leading manufacturers of emission control technology for motor vehicles. Our members have decades of experience and a proven track record in developing and manufacturing emission control technology for a wide variety of on-road and off-road vehicles and equipment. A number of our members have extensive experience in the development, manufacture, and application of PM control retrofit technologies. Indeed, most of the successful programs cited by ARB in its technical report utilized retrofit technology developed and supplied by MECA members.

Technologies to Reduce Diesel PM Emissions

The ARB Staff technical report provides a comprehensive analysis of the emission control technology options available to reduce PM emissions from existing solid waste collection vehicles. MECA supports the analysis performed by the ARB and we offer some additional comments in support of the Staff's conclusions regarding the technological feasibility of the proposed program.

Diesel Particulate Filters – Diesel particulate filters (DPFs) are commercially available today. Over 70,000 on-road heavy-duty vehicles worldwide have been equipped with DPFs – most in retrofit applications. In addition, over 500,000 new passenger cars have been equipped with DPFs. The operating and durability performance of DPFs has been very impressive, as highlighted in the ARB staff report. For example, a growing number of on-road DPF-equipped heavy-duty vehicles have been successfully operating for several 100,000 miles or more. In addition to the successful retrofit programs cited by the ARB staff, other examples of successful programs include the New York City Department of Sanitation, which has successfully retrofitted a number of refuse trucks with filters.

High efficiency DPF technology can reduce PM emissions by up to 90 percent or more, ultra-fine carbon particles by up to 99+ percent and, depending on the system design, toxic HC emissions by up to 80 percent or more. Development work is underway to further enhance the performance of filter system designs. For example, work continues to develop and implement additional filter regeneration strategies that will expand the applications for retrofitting DPFs. Also, development work on filter materials and designs to further enhance filter system durability and to further reduce backpressure is underway. New, improved DPF systems continue to enter the diesel engine OE and retrofit market.

As mentioned in the Staff report, flow-through filter systems designs capable of reducing greater than 50 percent of the PM are emerging. A variety of different flow-through systems are being evaluated and MECA anticipates that flow-through filter systems will be an available option in the near future for those solid waste collection vehicles for which a high-efficiency DPF is not an available option.

MECA believes ARB's capital and operating costs estimates for DPFs in general are within a reasonable range. However, it is important to keep in mind that both capital and operating costs will vary among different engines, applications, and operating conditions. Individual MECA members have provided more detailed cost information directly to the ARB staff while staff developed the proposed rule.

MECA concurs with the ARB Staff's conclusion that any potential increase in NO₂ emissions from certain DPF systems will be minimal. In addition to the reasons cited in the Staff report, it is important to keep in mind that NO₂ emissions do not increase with all filter designs. For those systems that do use NO₂ to facilitate filter regeneration and where an increase in the NO₂ to NO ratio can occur, system and materials design efforts are occurring to further reduce or eliminate this phenomenon.

Diesel Oxidation Catalysts – Diesel oxidation catalysts (DOCs) are capable of reducing PM emissions typically in the range of 20 to 40 percent and can reduce toxic HC emissions by up to 70 percent. DOCs have been used in retrofit applications for over 30 years. Over 100,000 on-road vehicles and 250,000 off-road vehicles and equipment have been retrofitted with DOCs. In addition, over 35 million light-duty vehicles in

Europe and over 1.5 million trucks and buses in the U.S. have been equipped with DOCs as original equipment.

MECA concurs with the ARB Staff report that using 15 ppm sulfur fuel will minimize the formation of sulfate emissions from a DOC. Indeed, where low sulfur fuel is used, the DOC can be designed to be more active in reducing the SOF portion of the particulate. DOCs can and have been used on vehicles fueled with the conventional diesel fuel found in California. For these applications, the catalyst has been formulated to minimize sulfate production, but total PM control is compromised somewhat.

NOx Control Strategies – While NOx control is not being mandated by the proposed rule, it is worth noting that NOx control strategies exist or are emerging for diesel engines used on refuse hauling vehicles. The ARB retrofit requirement for PM reduction will create an opportunity for the fleets who elect to do so to incorporate NOx control strategies. These strategies include lean NOx catalysts, low pressure EGR, SCR, and fuel emulsions.

Conclusion

In closing, we commend the Air Resources Board for its continuing efforts to prove the people of California with healthy air quality and for demonstrating true leadership in proposing an innovative regulatory program that will significantly reduce PM emissions. Our industry is prepared to do its part to help meet the emission reduction goals of the solid waste collection vehicle rule. MECA and its members look forward to working with ARB, the fleet operators, and other interested stakeholders in implementing this important program.

#